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CDC

NATIONAL
COMMUNICABLE DISEASE CENTER

SALMONELLA

SURVEILLANCE

CONTENTS. . .

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE/PUBLIC HEALTH SERVICE
Bureau of Disease Prevention and Environmental Control

PREFACE

Summarized in this report is information received from State and City Health Departments, university and hospital laboratories, the National Animal Disease Laboratory (USDA, ARS), Ames, Iowa, and other pertinent sources, domestic and foreign. Much of the information is preliminary. It is intended primarily for the use of those with responsibility for disease control activities. Anyone desiring to quote this report should contact the original investigator for confirmation and interpretation.

Contributions to the Surveillance Report are most welcome. Please address

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I. SUMMARY

This issue of the Salmonella Surveillance Report contains details of an interstate outbreak due to a lactose-fermenting salmonella, a discussion of a holiday outbreak due to a catered meal in Georgia, and a further progress report on salmonella contamination of powdered milk.

In December 1966, 1,477 isolations of salmonellae were reported from humans, an average of 369 isolations per week (Tables I and II). This number represents a decrease of 55 (13.0 percent) from the weekly average of November 1966 and an increase of 2 (0.5 percent) over the weekly average of December 1965. The cumulative number of isolations reported for the first 12 months of 1966 (20,058) represents a decrease of 4.0 percent from the total number of isolations reported during this same period in 1965 (20,886).

Reports of 695 nonhuman isolations of salmonellae were received during December, a decrease of 331 (32.3 percent) from November 1966 (Tables IV, V, and VI).

We are sorry to report the departure of three members of our staff, Drs. John R. Boring and Albert R. Martin, and Mr. Stanley M. Martin. Dr. Boring has moved to the Emory University School of Medicine where he is Assistant Professor of Preventive Medicine and Community Health. Dr. Martin is starting an 18-month assignment at the Pakistan-SEATO Cholera Research Laboratory at Dacca, Pakistan, and Mr. Martin has been inducted into the United States Army.

II. REPORTS OF ISOLATIONS FROM THE STATES

A. Human

The seven most frequently reported serotypes during December were:

Rank	Serotype	Number	Percent	Rank Last Month
1	S. typhi-murium and S. typhi-murium var. copenhagen	442	29.9	1
2	S. heidelberg	115	7.8	3
3	S. newport	105	7.1	2
4	S. enteritidis	89	6.0	4
5	S. infantis	53	3.6	5
6	S. saint-paul	51	3.5	6
7	S. blockley	41	2.8	7
	Total	896	60.7	
	Total (all serotypes)	1477		

The age and sex distribution (Table III) was similar to that of previous months.

B. Nonhuman

Thirty-five states reported nonhuman isolations, represented by 63 different serotypes.

The seven most frequently reported serotypes during December were:

Rank	Serotype	Predominant Source and Number	Number	Percent	Rank Last Month
1	S. typhi-murium and S. typhi-murium var. copenhagen	Cattle (23) and Chickens (11)	72	10.4	1
2	S. cubana	Carmine dye (51)	67	9.6	Not listed
3	S. eimsbuettel	Livestock feed (44)	58	8.3	Not listed
4	S. heidelberg	Turkeys (27)	45	6.5	1
5	S. infantis	Chickens (22)	35	5.0	7
6	S. anatum	Swine (6)	34	4.9	4
7	S. schwarzengrund	Turkeys (18)	25	3.6	6
	Total		336	48.3	
	Total (all serotypes)		695		

The most prominent nonhuman sources of salmonellae reported during December were turkey, 99 (14.2 percent); livestock feed, 98 (14.1 percent); chicken, 68 (9.8 percent); swine, 64 (9.2 percent); and carmine dye, 51 (7.3 percent). Salmonella cubana ranks second this month due mainly to 51 isolates from carmine dye, 38 of which were reported by New York. Louisiana reported 44 isolations of S. eimsbuettel from livestock feed.

III. CURRENT INVESTIGATIONS

A. Progress Report - Interstate Outbreak of Salmonellosis Related to Nonfat Dry Milk.
Compiled by the Salmonella Unit from data received from the U.S. Department of Agriculture and the U.S. Food and Drug Administration.

Several new recalls of salmonella-contaminated nonfat dry milk have been announced by the U.S. Food and Drug Administration. The brands and manufacturers are listed below:

Brand	Manufacturer or Distributor
Food Club Nonfat Dry Milk	Crystal Dairy Lebanon, Illinois
XXX Extragrade Spray Process Nonfat Dry Milk	Cass Clay Creamery, Inc. Fargo, North Dakota
Stop & Shop Instant Nonfat Dry Milk	Stop & Shop Boston, Massachusetts
Table-Rite Instant Nonfat Dry Milk	Crystal Dairy Products Rochester, Indiana
Instant Nonfat Dry Milk Distributed under Colonial Stores, Food Club, IGA, Monarch, and Stop & Shop Labels	Crystal Dairy Products Rochester, Indiana

All the contaminated lots have been withdrawn from the market. The contaminating serotypes were S. alachua and/or S. cubana in all instances except for the XXX brand, which contained S. orion. The Dairy Division, Consumer and Marketing Service, U.S. Department of Agriculture, has continued its salmonella testing of milk-drying plants. The following table summarizes their work for the months of November and December, as well as the results of the entire testing program since it began in March 1966.

	November 1-30	December 1-31	Total March-December 31, 1966
Number of plants represented	27	47	214
Total number of tests (Consists of 75% product samples, 25% environmental samples)	528	997	5884
Number of positive product samples	4	6	46
Number of positive environmental samples	7	17	68

IV. REPORTS FROM THE STATES

A. Michigan

Outbreak of Salmonellosis Due to a Lactose-Fermenting Variant of Salmonella newington.
Reported by Dr. George Pickett, Epidemiologist, Wayne County Health Department, and Dr. George H. Agate, Chief, Division of Epidemiology, Michigan Department of Public Health.

Nine patients, all over 65 years of age, became acutely ill in early November 1966 while residing in a Wayne County, Michigan, nursing home which houses approximately 100 patients. Symptoms consisted of diarrhea, low-grade fever, and abdominal cramps.

Two of the stool specimens obtained from these patients contained organisms that gave a typical salmonella reaction when plated directly on Bismuth sulfite agar, but direct plating on MacConkey's and Salmonella-Shigella media showed only lactose-fermenting colonies to be present. Pre-enrichment of these samples in tetrathionate brilliant green broth gave the same results when plated. The cultures were typed as Salmonella newington by the Salmonella Laboratory of the Michigan Department of Health. Except for lactose fermentation, the biochemical reactions of the organism conformed to the typical salmonella profile.

BIOCHEMICAL REACTIONS

	Michigan Isolate	Typical Salmonella
Indol	-	-
Methyl Red	+	+
Voges-Proskauer	-	-
Citrate	+	+
H_2S	+	+

BIOCHEMICAL REACTIONS (Continued)

	Michigan Isolate	Typical Salmonella
Urease	-	-
Motility	+	+
Malonate	-	-
Lysine	+	+
Glucose	+	+
Lactose	+	-
Sucrose	-	-
Mannitol	+	+
Dolsitol	+	+
Sorbitol	+	+

Instant nonfat dry milk powder was suspected as the vehicle of infection. A sample of this material was taken from a stainless steel lined storage bin at the nursing home, and bacteriologic analysis yielded a lactose-fermenting S. newington. Many production line samples of dried milk obtained from the plant processing the milk in question yielded the same organism. The Enteric Bacteriology Unit, Bacteriology Section, Laboratory Improvement Program, National Communicable Disease Center, received cultures from one of the patients and the milk in the nursing home and confirmed the Michigan findings.

Editor's Comment: The frequency of occurrence of lactose-positive salmonellae is not precisely known. Ewing and Ball examined approximately 400 unselected salmonella serotypes in 1964 and found that 0.8 percent fermented lactose[1]. Seligmann and Saphra, in 1946, reported an organism biochemically classified as a coliform although possessing the complete antigens of S. newington[2]. Kauffmann described lactose-fermenting variants of S. anatum, S. newington, S. paratyphi B, S. typhi, S. typhi-murium, S. senftenberg, S. tennessee, S. ferlac, and others[3].

Salmonella newington accounted for only 0.3 percent of the human isolations and 0.7 percent of the nonhuman isolations of salmonellae reported to the Salmonella Surveillance Unit in 1964 and 1965. The present report and previous experience of isolating lactose-fermenting variants of the same serotype raises the question of serotypic specificity of this biochemical variation. Perhaps certain salmonella serotypes can adapt to media containing abundant lactose, such as milk. If this happens often, then many organism will not be identified correctly unless proper bacteriologic techniques are used. Under these circumstances, the incorporation of media such as Bismuth sulfite would be necessary for routine culturing of foods and feeds containing large amounts of lactose, e.g., raw milk.

Until the extent of this phenomenon can be accurately determined, it is probably not necessary for laboratories isolating salmonellae to begin using Bismuth sulfite routinely. However, when salmonellae are strongly suspected as an infecting agent, or a contaminant, but no pathogen is obtained, the possibility of a lactose-fermenting variant should be considered and proper media included in the bacteriologic procedures.

REFERENCES

1. Ewing, W. H., and Ball, M. M.: The Biochemical Reactions of Members of the Genus Salmonella. CDC Publication, 1965.
2. Seligmann, E., and Saphra, I.: A coliform bacterium with the complete antigens of Salmonella newington. Journal of Immunology, 54:(3)275-282, 1946.
3. Kauffmann, Fritz: Die Bakteriologie Der Salmonella Species. Munksgaard, Kopenhagen, 1961, p. 81.

B. Georgia

Salmonella saint-paul Outbreak Traced to a New Year's Eve Party.
Reported by Dr. John McCroan, Director, Section of Biologic Studies, Mr. Tom McKinley, Assistant State Epidemiologist, Georgia State Department of Public Health, and Drs. George T. Curlin, Robert W. Armstrong, and L. Ariel Thomson, EIS officers, Bacterial Diseases Section, National Communicable Disease Center.

A large outbreak of salmonella gastroenteritis has been traced to a New Year's Eve party at which a buffet dinner was served. From an incomplete list of approximately 540 guests, 116 persons were interviewed by telephone for clinical and food histories. Of these, 51 (44 percent) were ill with watery diarrhea, cramps, vomiting, headache, and fever of 101° to 103°; three persons were hospitalized briefly. The mean incubation period was 22½ hours and the illness lasted from 2 to 4 days. Salmonella saint-paul has been recovered from stool specimens from 34 of the patients.

Food histories clearly incriminated a "chicken salad" made from commercially prepared, precooked frozen turkey rolls and salad ingredients. Attack rates for individual foods are listed below.

FOOD	ATE			DID NOT EAT		
	Ill	Not Ill	Attack Rate	Ill	Not Ill	Attack Rate
Seafood Newburg	27	20	57%	24	45	35%
"Chicken Salad"	42	4	91%	9	61	13%
Chicken Liver	7	4	36%	47	58	45%
Potato Salad	30	22	58%	21	43	33%
Tuna Salad	19	9	68%	32	56	36%
Sliced Turkey	28	28	50%	23	37	38%

The differential attack rate between those who ate and did not eat "chicken salad" was highly significant ($P < 0.001$); there were no such significant differences in attack rates for the other 46 items on the menu.

The same salad ingredients were used in other salads which were not implicated, and cold sliced turkey from the same lot as the turkey rolls was served separately but not implicated. None of the served food was available for culture. The kitchen employees denied symptoms of gastroenteritis, but 6 of 14 stool cultures obtained from them grew S. saint-paul. All 6 employees with positive cultures participated in preparing the turkey salad and admitted that they had eaten a portion during preparation.

Cultures from the environment and from food ingredients were negative for salmonellae. Several studies are in progress, including a more extensive sampling of the turkey rolls from the same commercial shipment.

C. Maryland

Salmonella Infections in Pet Turtles in Montgomery County, Maryland, and a Simultaneous Family Outbreak Traced to a Pet Turtle.
Reported by Ernest H. Joy, M.D., Chief, Disease Control Division, and Roy P. Lindgren, M.D., Health Officer, Montgomery County Health Department, Rockville, Maryland.

On January 5, 1966, a small survey of the retail distribution of pet turtles in Montgomery County, Maryland, was undertaken to assess the potential danger of disseminating salmonella infection to humans. Seven retail outlets were selected from urban areas so that each would represent a different wholesale distribution source.

The planned method was to collect water samples from the selected pet shop turtle tanks on two occasions at an interval of one month. However, additional specimens were taken to confirm initial positive cultures. The results of this survey are summarized in Chart 1. Cultures from six of the seven retail outlets were positive for salmonella organisms. The turtle feed for sale in each pet shop was found to be negative for salmonella organisms. Chart 2 represents the autopsy findings of 53 turtles obtained from retail outlet E.

By coincidence, 3 days after this survey was begun, a Montgomery County child became seriously ill with a Salmonella thompson infection. During a field investigation a pet turtle was removed from the patient's home for bacteriological studies. This turtle had been purchased from one of the pet shops included in the above survey. In the meantime the patient's three siblings and both parents had come down with less severe but similar symptoms, and their stool cultures showed S. thompson in two instances and S. enteritidis in three. Both S. thompson and S. enteritidis were cultured directly from the turtle at autopsy, and these serotypes were also obtained from the other five family members and the water from the pet shop turtle tank. There seems little doubt that the pet turtle caused this disease outbreak.

CHART 1

Survey of Pet Turtles in Retail Stores in Montgomery County, Maryland
January 5 to March 18, 1966

Retail Store	Sampling Date	Number of Turtles in Tank	Turtles Received by Store	Breeding Source	Results of Tank Water	Identification
A	1/5/66	22	Dec./65	Miss.	-	
	2/8/66	10	2/1/66	Miss.	-	
B	1/5/66	0[1]	11/27/65	La., Miss.	+	S. arizona
	1/17/66	1	1/11/66	La., Miss.	+	S. manhattan
	3/7/66	2	2/23/66	La., Miss.	+	S. urbana
C	1/5/66	15	Nov./65	Pa.[2]	-	
	2/15/66	75	1/14/66	Miss.	+	S. livingstone
	3/1/66	50	1/14/66	Miss.	+	S. saint-paul
D	1/5/66	15	Dec./65	Fla.	+	S. thompson
	1/17/66	4	Dec./65	Fla.	+	S. thompson
	3/18/66	50	3/15/66	Fla.	+	Group C-1
E	1/5/66	30	Oct./65	La.	-	
	2/8/66	75	2/2/66	La.	+	S. java S. poona
F	1/5/66	5	1/3/66	La.	+	S. heidelberg
	1/17/66	1	1/3/66	La.	+	S. heidelberg
	3/7/66	8	2/14/66	La.	+	S. thompson

CHART 1 (Continued)

Retail Store	Sampling Date	Number of Turtles in Tank	Turtles Received by Store	Breeding Source	Results of Tank Water	Identification
G	1/5/66	2	12/15/65	La.	-	
	2/8/66	8	2/1/66	La.	+	S. montevideo
	3/1/66	25	2/16/66	La.	+	S. panama

1. No turtles present in tank but tank still filled with water and residue from previous turtles now sold.
2. Denotes wholesale distributor only.

CHART 2

Results of 53 Autopsied Turtles Obtained from Retail Outlet E
Montgomery County, Maryland, February 8, 1966

Organism	Isolation	Number
S. java in heart and liver	Absent	17
	Present	7
S. java in intestinal fecal content	Absent	13
	Present	40
S. java in intestinal inflammation[1]	Absent	8
	Present	5

1. Examination limited to turtles where intestinal content absent.

V. SPECIAL REPORTS

Announcement of a Course in Epidemiology and Control of Salmonellosis

The National Communicable Disease Center in Atlanta, Georgia, will present a course, "Epidemiology and Control of Salmonellosis," February 27-March 3, 1967. Control of salmonellosis will be emphasized. Current information and useful techniques related to control will be delineated.

This 5-day course has been designed for workers who are active in the epidemiology and control of salmonellosis. Following a summary of the morbidity and mortality attributed to salmonellosis, the bacteriology of the salmonella organism and environmental factors that govern its survival or destruction will be presented. Selected aspects of the epidemiology of salmonellosis, including the reservoirs of salmonellae, will be discussed, and close attention will be given to the contributory sources of salmonella contamination of food, water, animal feed and fertilizer, and of animals themselves. The course emphasizes techniques of control, particularly as applied in the farm environment, in the processing of foods and of animal feed, and in food-service operations. Administrative application of the information, techniques, and concepts will be considered, and program activities of various

interested agencies reviewed. Lectures, demonstrations, problem workshops, discussions, and field work will be used to teach the course.

There will be no charge for the course or the training materials distributed. Travel and living costs are the responsibility of the applicant. For application forms and information, write: Chief, Training Program, National Communicable Disease Center, Atlanta, Georgia 30333.

VI. INTERNATIONAL

A. Belgium

Report of Isolations of Salmonella from Human Sources - Fourth Quarter 1966.
Reported by E. van Oye, M.D., National Salmonella and Shigella Center of Belgium.

During the fourth quarter of 1966, 852 isolations of salmonellae from human sources were reported. The five most common serotypes are shown in the table below.

Rank	Serotype	Number	Percent
1	S. typhi-murium	626	73.5
2	S. panama	91	10.7
3	S. brandenburg	46	5.4
4	S. heidelberg	17	2.0
5	S. bovis-morbificans	10	1.2

The total number of human isolations for 1966 was 2,871, representing a 50.7 percent increase over the 1,905 isolations in 1965. Salmonella arechavaleta and S. bispebjerg were isolated from humans for the first time in Belgium.

B. Israel

Phage Typing of Salmonella typhi-murium in Israel, 1964-1965.
Reported by Ch. B. Gerichter, M.D., Ph.D., Director, Government Central Laboratories, Ministry of Health, Jerusalem, Israel.

During the years 1964-1965, 1,552 strains of Salmonella typhi-murium (including 438 of var. copenhagen) were isolated in Israel and typed on the basis of Felix and Callow's phage typing scheme. The most frequent phage types found were:

S. typhi-murium: 1a var. 2 (28.2%), 1 (21.8%), 3a (7.5%), 2b (5.5%), 1a (4.1%), 1 var. 2 (4.0%), 2 (3.4%), 4 (2.8%)

S. typhi-murium var. copenhagen: 1a var. 2 (13.0%), 1 (8.5%), 2 (6.2%), 3a (5.1%), 1a (2.4%), 3 (2.4%)

The general percentage of strains resistant to phage typing was 29.5 percent; these strains were far more frequent among the var. copenhagen (58.2 percent) than among the S. typhi-murium strains (18.4 percent).

Among 44 outbreaks examined, 13 were produced by type 1, 12 by type 1a var. 2, 7 by the types 1 var. 2, 1a, 3, 3a, and 12 by strains resistant to all the phage typing preparations of Felix and Callow.

The identity of phage pattern in the human strains and in those isolated from the contaminated food helped in many instances to trace the source of infection.

Editor's Comment: Phage typing of S. typhi-murium can be a valuable aid in epidemiological investigations. The Enteric Bacteriology Unit, Bacteriology Section, Laboratory Improvement Program, National Communicable Disease Center, is prepared to perform such phage typing. However, in order not to overburden the existing facilities, it is requested that all such cultures be accompanied by relevant clinical and epidemiological data.

VII. FOOD AND FEED SURVEILLANCE

Progress Report on Food Surveillance

One hundred thirty-seven samples of frozen egg were received by the Veterinary Public Health Laboratory during December and were examined for salmonellae and Escherichia coli. The samples were from Louisiana, Illinois, New York City, Colorado, Florida, Washington, New Mexico, and Virginia and consisted of whole egg (93), egg white (23), egg yolk (18), and egg product (3). Escherichia coli was isolated from 20 samples, at least one positive sample coming from each of the above states. Five samples of whole egg were positive for salmonellae. These samples all came from Florida and represented three brands. The contaminating serotypes were 2 S. oranienburg, 1 S. eimsbuettel, 1 S. infantis, and 4 as yet unidentified.

TABLE I
COMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS IN THE UNITED STATES DURING DECEMBER 1966

SEROTYPE	GEOGRAPHIC DIVISION AND REPORTING CENTER																																	SEROTYPE
	NEW ENGLAND							MIDDLE ATLANTIC						EAST NORTH CENTRAL						WEST NORTH CENTRAL							SOUTH ATLANTIC									
	ME	NH	VT	MASS	RI	CONN	TOT	NY-A	NY-BI	NY-C	NJ	PA	TOT	OHIO	IND	ILL	MICH	WIS	TOT	MINN	IOWA	MO	ND	SD	NEBR	KAN	TOT	DEL	MD	DC	VA	WV	NC	SC	GA	FLA	TOT	
anatum				6			6			1			1			2		4	6																2	4	anatum
bareilly																																		2	2	bareilly
berta										1			1																								berta
blockley									2	2			4			3	4		7		1	1				2	4				1				5	6	blockley
braenderup														6		1			7							1	1										braenderup
bredeney									3	1	1		5			1		1	2										1				1		2	bredeney
chester						1	1									5	5		10																		chester
cholerae-suis v kun																															2				2	cholerae-suis v kun
cubana															1	2	2		5	1							1										cubana
derby				3			3		3	1		2	6				6		6	1							1	1	2				1	1	5	derby
enteritidis				18		4	22		5	4	2	7	18	4		10	2	1	17	1	1					4	6	2	12		4		3		1	22	enteritidis
give														1					1															1	1	2	give
heidelberg				5		1	6		3	3	3	1	10	12	3	15	9	3	42	9	3						12	1	1		4		5	2	9	22	heidelberg
indiana											1		1					1	1																		indiana
infantis				1		1	2		2			2	4			7	1	1	9		2	2				1	5				3		1	2	5	11	infantis
java				1		1	2		3				3			4		3	7	1							1										java
javiana																1			1							3	3							1	6	7	javiana
kentucky				1			1				1	1	2							3							3										kentucky
litchfield										1	1		2			2	2		4			2					2							1	1	2	litchfield
livingstone																																					livingstone
manhattan											1	2	3			4	3		7	1				3			4			1					1	manhattan
meleagridis																																					meleagridis
miami									1				1																						6	6	miami
mississippi																																		3		3	mississippi
montevideo				2			2		1	2	2		5							1							1		1		1				3	5	montevideo
muenchen									2				2	3		1	1		5										1		1			1	3	muenchen
newington																3			3																		newington
newport				3	1	4	8		2	3	4	6	15	1		3			4	1		1				2	4		1		3			2	16	22	newport
oranienburg										2	2		4	2		2	2		6																3	3	oranienburg
panama									1	1	1	3	6				2		2																		panama
paratyphi B				1			1									1			1	1							1								1	1	paratyphi B
poona																1			1																1	1	poona
saint-paul				7		1	8			2	1		3		3	9	2	2	16	2							2					2		2	3	7	saint-paul
san-diego				1			1					2	2				1		1																		san-diego
schwarzengrund				2			2								1		1		2	1							1										schwarzengrund
senftenberg						1	1																														senftenberg
tennessee				8			8										1		1	1							1										tennessee
thompson	1			1		1	3		1	1		1	3				7	2	9	1						3	4			1				2	3	thompson
typhi				2		1	3		1			2	3	1	1		1		3			6		2	1	9			1		1	1		2	5	typhi
typhi-murium			4	22		10	36		25	16	19	16	76	10	2	52	6	3	73	3		8	1	1		15	28		7	2	8		3	14		8	31	73	typhi-murium
typhi-murium v cop				3		1	4				5	3	8				8		8																		typhi-murium v cop
urbana																	1		1																		urbana
weltevreden																																					weltevreden
worthington																				1							1										worthington
untypable, group B		8					8			1			1																	1				2		2	5	untypable, group B
untypable, group C1																																		1	1	untypable, group C1
untypable, group C2		1					1																											1	1	untypable, group C2
untypable, group D				1			1																											5	5	untypable, group D
untypable, group E																														1					1	untypable, group E
untypable or unknown					2		2											2	2				1				1				1				1	untypable or unknown
Total Common	1	9	4	88	3	27	132	0	55	42	44	48	189	40	11	128	68	23	270	29	7	20	2	6	1	31	96	4	27	6	30	4	26	2	24	111	234	Total Common
Total Uncommon	0	0	0	2	0	0	2	0	1	3	1	0	5	0	0	1	2	1	4	3	0	0	0	0	0	0	3	0	1	0	0	1	0	0	5	12	19	Total Uncommon
Grand Total	1	9	4	90	3	27	134	0	56	45	45	48	194	40	11	129	70	24	274	32	7	20	2	6	1	31	99	4	28	6	30	5	26	2	29	122	253	Grand Total

(New York, A-Albany, BI-Beth Israel, C-City)

*The Beth-Israel Salmonella Typing Center in New York is a reference laboratory and processes many cultures from other states which are assigned to the respective states although reported by NY-BI. Beth-Israel reported a total of 106 isolations for December.

TABLE I (Continued)
COMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS IN THE UNITED STATES DURING DECEMBER 1966

SEROTYPE	GEOGRAPHIC DIVISION AND REPORTING CENTER																						DEC. TOTAL	% OF TOTAL	1966 CUM. TOTAL	% OF 1966 CUM. TOTAL	1965 CUM. TOTAL	% OF 1965 CUM. TOTAL	SEROTYPE
	EAST SOUTH CENTRAL					WEST SOUTH CENTRAL					MOUNTAIN									PACIFIC						OTHER					
	KY	TENN	ALA	MISS	TOT	ARK	LA	OKLA	TEX	TOT	MONT	IDA	WYO	COLO	NM	ARI	UTAH	NEV	TOT	WASH	ORE	CAL	ALAS	HAI	TOT	VI					
anatum							2			2				2		2			4			3		2	5		28	1.9	333	1.7	301	1.4	anatum
bareilly	1				1				2	2														1	1		6	0.4	78	0.4	104		bareilly
berta							2			2																	3	0.2	34	0.2	47		berta
blockley		2			2		4		2	6						3			3	2	1	2		4	9		41	2.8	602	3.0	400	2.0	blockley
braenderup																											8	0.5	111	0.5	85		braenderup
bredeney	1				1				4	4						1			1			4		1	5		20	1.4	158	0.8	160		bredeney
chester																						1			1		12	0.8	108	0.5	116		chester
cholerae-suis v kun																											2	0.1	26	0.1	36		cholerae-suis v kun
cubana																											6	0.4	131	0.7	145		cubana
derby							1			1										2	2	3		3	10		32	2.2	402	2.0	632	3.0	derby
enteritidis																				1	1	2			4		89	6.0	1,234	6.2	1,065	5.1	enteritidis
give							2			2												1			1		6	0.4	78	0.4	116		give
heidelberg		1	1		2				8	8							1		1	6		5		1	12		115	7.8	1,623	8.1	1,620	7.8	heidelberg
indiana																											2	0.1	65	0.3	66		indiana
infantis		1			1		2		1	3				1		2			3	4	1	6		4	15		53	3.6	1,309	6.5	1,145	5.5	infantis
java		2			2		2			2				1		1			2			9			9		28	1.9	365	1.8	199	1.0	java
javiana						1	1		10	12																	23	1.6	302	1.5	361	1.7	javiana
kentucky							2		1	3						1			1								10	0.7	38	0.2	19		kentucky
litchfield							1		1	2						1			1			1			1		14	0.9	97	0.5	99	0.5	litchfield
livingstone									1	1							2		2					1	1		4	0.3	32	0.2	34		livingstone
manhattan		2			2																1	1		1	3		20	1.4	134	0.7	125		manhattan
meleagridis																													8	0.0	140		meleagridis
miami																											7	0.5	83	0.4	95		miami
mississippi									2	2																	5	0.3	54	0.3	38		mississippi
montevideo									2	2																	15	1.0	337	1.7	457	2.2	montevideo
muenchen							2		3	5	1					1			2			2			2		19	1.3	228	1.1	219		muenchen
newington									3	3																	6	0.4	53	0.3	57		newington
newport		1	1		2	7	5		19	31				1		1			2			16		1	17		105	7.1	1,302	6.5	1,256	6.0	newport
oranienburg									1	1												4			4		18	1.2	398	2.0	592	2.8	oranienburg
panama														1		1			2					5	5		15	1.0	272	1.4	229		panama
paratyphi B									2	2						1			1	2					2		9	0.6	153	0.8	177		paratyphi B
poona																1			1			1			1		4	0.3	40	0.2	48		poona
saint-paul									1	1				1			1		2	2	2	6		2	12		51	3.5	736	3.7	768	3.7	saint-paul
san-diego														1					1								5	0.3	118	0.6	229		san-diego
schwarzengrund																	1		1								6	0.4	71	0.4	115		schwarzengrund
senftenberg																											1	0.1	70	0.3	74		senftenberg
tennessee																1			1								11	0.7	133	0.7	173		tennessee
thompson						1			4	5				3			1		4			2			2		33	2.2	577	2.9	561	2.7	thompson
typhi	1	1			2	2				2										1	1	3			5		32	2.2	657	3.3	721	3.5	typhi
typhi-murium		3			3		11	4	16	31	3			14		3	1		21	14	1	57		7	79		420	28.5	5,729	28.6	6,531	31.3	typhi-murium
typhi-murium v cop							1			1	1								1								22	1.5	177	0.9	203	1.0	typhi-murium v cop
urbana																											1	0.1	28	0.1	33		urbana
weltevreden																								7	7		7	0.5	45	0.2	35		weltevreden
worthington									1	1														1	1		3	0.2	44	0.2	46		worthington
untypable, group B				1	1	4			1	5			1		4				5		1	1			2		27	1.8	350	1.7	295		untypable, group B
untypable, group C1						2				2					36				36								39	2.6	153	0.8	92		untypable, group C1
untypable, group C2						7				7					2				2								11	0.7	79	0.4	57		untypable, group C2
untypable, group D						1			1	2					3				3								11	0.7	67	0.3	48		untypable, group D
untypable, group E				1	1																						2	0.1	14	0.1	51		untypable, group E
untypable or unknown				1	1				3	3																	10	0.7	86	0.4	114		untypable or unknown
Total Common	3	13	2	3	21	25	38	4	89	156	5	0	1	25	45	16	11	0	103	34	11	130	0	41	216		1,417	95.9	19,322	96.3			Total Common
Total Uncommon	0	1	0	0	1	0	2	0	6	8	0	0	0	0	2	0	0	0	2	4	1	4	0	7	16		60	4.1	736	3.7			Total Uncommon
Grand Total	3	14	2	3	22	25	40	4	95	164	5	0	1	25	47	16	11	0	105	38	12	134	0	48	232		1,477	100.0	20,058	100.0	20,886		Grand Toal

TABLE II
UNCOMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS DURING 1966

SEROTYPE	REPORTING CENTER																												
	ALA	ALAS	ARI	ARK	CALIF	COLO	CONN	DEL	DC	FLA	GA	HAI	IDA	ILL	IND	IOWA	KAN	KY	LA	ME	MD	MASS	MICH	MINN	MISS	MO	MONT	NEBR	NEV	NH	NJ	NM
aberdeen					1																											
abony																																
abortus-bovis														2																		
agama																	1															
alachua					2					1	1								1													
albany					4					2									1		1	2		1								
amager											1																1					
arechavaleta																							1									
arkansas																			1													
atlanta											19																					
austin																										1						
bali					2																											
berlin																																
binza					4	1				3								1	2		3	1		2							1	
bonaire					1																											
bonariensis														1																		
bovis-morbificans		1			1					1		1		1					1				1									
bradford						2											1														1	
brandenbrug							1				1																					
california					2					1	2			1	1				6													
carrau																			3													
cerro												3		1			1				2											
chalfey					5																											
cholerae-suis	1				1	1																1										
coleypark										2																						
colorado																			1													
concord																																
corvallis														1																		
daytona										2									1													
denver																																
drypool											1																					
dublin					4																											
dusseldorf					1			1											2												1	
duisburg																																
durham																								3								
elmsbuettel										3									1				2									
fayed																																
galiema						1																										
gallinarum																																
gaminara										1									5													
garoli																																
glostrup														1							1											
grumpensis												1																				
habana														1									1									
haifa									1		3																					
hartford					2		1			11	1	1		3					1			1	1	1							1	
ibadon																																
inverness														1										1								
irumu						2																				1						
johannesburg																																
kaapstad						1																										
kottbus																																
lanka					1																											
loma-linda			1		2									2																		
lomita																																
london										1																						
luciana										1																						
madelia	1									1																					1	
manchester						1									1																	
menston																	2															
minneapolis																																
minnesota					3										1	1																
mission										2	1																					
mjimwema																																
molade																																
muenster			1		2					11				2					3												1	
nagoya																																
new-brunswick	1	2			2		5			5	2				1						2	5	2	2							1	
new-haw																			9													
newlands						1																										
nienstedten																																
norwich				2		1				3									6							1						
nottingham														1																		
ohio					7																		2									
orion																																
oritamerin																																
os																			3													
oslo					4							21					1															
papuana																																
paratyphi-A					3																1	2										
paratyphi-B v. odense																							2									
paratyphi-C						1																										
phoenix																																
pomona					2														1							1						
portland																																
potsdam					1									2																		
pullorum														9					1													
reading			1		14	2	3	3		2				17				4		2			5	2			1				2	
remo																																
rubislaw					2					5									11			1										
saphra																																
sarajane																																
sendai																						1										1
seremban									2																							
siegburg	1		1		2					1									1				1								2	
simsbury											1			1								1										1
snahanina																																
solna																																
stanley										2				2																		
stockholm																																
sundsvall			1											1																		
tallahassee										6																						
texas															1																	
thomasville														1					1													
virchow																							3									
waasenaar																			1													
welasco											1																					
westerstede										5																						
westhampton										1																						
untypable group A																															1	
untypable group G										1									1												4	
untypable group H																															2	
untypable group O					3																											
Total	4	3	5	2	78	14	10	4	3	74	34	27	0	51	5	1	6	5	64	2	10	15	22	12	0	4	1	0	0	0	11	4

TABLE II (Continued)
UNCOMMON SALMONELLA SEROTYPES ISOLATED FROM HUMANS DURING 1966

REPORTING CENTER																					DEC. TOTAL	1966 CUM. TOTAL	MONTH LAST REPORTED	STATE LAST REPORTED	TOTAL PREVIOUSLY REPORTED TO SAL. SURV. UNIT 1962-1965	SEROTYPE
NY-A	NY-BI	NY-C	NC	ND	OHIO	OKLA	ORE	PA	RI	SC	SD	TENN	TEX	UTAH	VT	VA	VI	WASH	WV	WIS	WYO						
																1							1	May 66	Cal	1	aberdeen
																							1	Oct 66	Va	2	abony
																							2	Jan 66	Ill	0	abortus-bovis
													2										3	Nov 66	Tex	0	agama
		1																				1	6	Dec 66	Ga	21	alachua
		2											1									3	14	Dec 66	Cal-Md-NYC	15	albany
	1																						3	Nov 66	NYBI	51	amager
																							1	Oct 66	Mich	1	arechavaleta
																							1	Jul 66	La	1	arkansas
																						3	19	Dec 66	Ga	25	atlanta
																							1	Feb 66	Mo	1	austin
																							2	Jun 66	Cal	0	ball
								2															2	Aug 66	Pa	0	berlin
1	1	1						1										1				1	23	Dec 66	Wash	54	binza
																							1	Apr 66	Cal	0	bonaire
																							1	Jun 66	Ill	2	bonariensis
3																		2					12	Nov 66	Hai	44	bovis-morbificans
																							4	Jul 66	Colo-NJ	2	bradford
																							2	Oct 66	Conn	10	brandenburg
							1									1						1	15	Dec 66	Ore	64	california
													3										6	Nov 66	Tex	12	carrau
												2	2										11	Nov 66	Tex	28	cerro
	3	2			1											1							6	Oct 66	Va	1	chailey
																							10	Nov 66	Ala	66	cholerae-suis
																							2	Aug 66	Fla	0	coleypark
		1																					1	Feb 66	La	8	colorado
																							1	Jun 66	NYC	4	concord
																							1	Aug 66	Ill	3	corvallis
																							3	Nov 66	Fla-La	5	daytona
													2									1	2	Dec 66	Tex	2	denver
		1																					2	Sep 66	Ga-NYC	0	drypool
		1																				1	4	Dec 66	Cal	8	dublin
																							6	Sep 66	Dela-NJ	7	dusseldorf
					2													2					4	Aug 66	Ohio	8	duisburg
																						3	3	Dec 66	Minn	0	durham
1			7									1	2									1	17	Dec 66	Fla	3	eimsbuettel
			9																				9	Oct 66	NC	6	fayed
																							1	Nov 66	Colo	1	galiema
	1																						1	Sep 66	NYBI	3	gallinarum
		1											2					1				1	10	Dec 66	Tex	20	gaminara
		1																					1	Mar 66	NYC	0	garoli
																							2	Aug 66	Ill	1	glostrup
		1														1						1	2	Dec 66	Hai	11	grumpensis
																							3	Jul 66	Mich-NYC	0	habana
																							4	Nov 66	Ga	3	haifa
			2		1	1							2		1					4		4	33	Dec 66	Fla-Hai	90	hartford
																							2	Oct 66	Tex	0	ibadon
																							2	Aug 66	Ill	13	inverness
4	1																						8	Sep 66	Mo-NYBI	108	irumu
		1																					1	Nov 66	NYC	8	johannesburg
1																							1	Mar 66	Colo	3	kaapstad
																							1	Aug 66	NYA	14	kottbus
																							1	Apr 66	Cal	0	lanka
2							1	1														1	7	Dec 66	Cal	17	loma-linda
																							2	Oct 66	NYA	7	lomita
																						1	1	Dec 66	Fla	6	london
																							1	Jul 66	Fla	2	luciana
																							3	Nov 66	Ala-NJ	6	madelia
									1														3	Nov 66	Pa	5	manchester
																							2	Jul 66	Kan	14	menston
1													2							1		2	8	Dec 66	Cal-Wisc	40	minnesota
							1					2										1	6	Dec 66	Ga	7	mission
1																							1	Jan 66	NYA	0	mjimwema
																				1			1	Feb 66	Wisc	0	molade
								5												2		3	27	Dec 66	Fla-La	26	muenster
													1										1	May 66	Tex	1	nagoya
3		1					2	1					9			2		4		1		5	53	Dec 66	Fla-NJ-Tex	32	new-brunswick
																							9	Nov 66	La	2	new-haw
																							1	Jun 66	Colo	0	newlands
														1								1	Sep 66	Utah	0	nienstedten
		2			1	1	1					3	7									2	28	Dec 66	Fla-La	51	norwich
																						1	1	Dec 66	Ill	1	nottingham
					3																		12	Oct 66	Mich-Okla	13	ohio
					3																		3	Jul 66	Ohio	7	orion
		1																					1	Mar 66	NYC	0	oritamerin
																							3	Mar 66	La	0	os
																						5	26	Dec 66	Hai	15	oslo
													1										1	Oct 66	Tex	0	papuana
																			1			3	7	Dec 66	Mass-WVa	34	paratyphi-A
																							2	Jul 66	Mich	1	paratyphi-B v. odense
													1										1	Mar 66	Colo	7	paratyphi-C
																							1	Nov 66	Tex	1	phoenix
		1																					4	Oct 66	Cal	4	pomona
																							1	Nov 66	NYC	1	portland
																							3	Nov 66	Ill	1	potsdam
																							10	May 66	La	4	pullorum
7	1		2				1	15		1		7	3					7		2		6	104	Dec 66	Mich-Tenn- Wash	102	reading
																1							1	Oct 66	Va	2	remo
							1					1	8	1									30	Nov 66	Tex-Utah	42	rubislaw
													13										13	Nov 66	Tex	19	saphra
					2																		2	Jul 66	Ohio	1	sarajane
	2	2																				1	6	Dec 66	NYBI	1	sendai
																							2	Aug 66	DC	0	seremban
1		1										2	2										15	Nov 66	Ala-Ariz-Fla-NJ-NYC	19	siegburg
													1										5	Nov 66	Ga-Tex	16	simsbury
													1										1	Aug 66	Tex	0	soahanina
		1																				1	1	Dec 66	NYC	0	solna
			1																	1			6	Nov 66	Wisc	26	stanley
					1																		1	May 66	Ohio	0	stockholm
													1										3	Nov 66	Ariz	4	sundsvall
			1																			3	7	Dec 66	Fla	14	tallahassee
																							1	Sep 66	Ind	0	texas
		2											1									2	5	Dec 66	NYC-Tex	17	thomasville
							1																4	May 66	Ore	16	virchow
																							2	Oct 66	Mich	0	waesenaar
																							1	Jul 66	Ga	2	welasco
		1																					6	Nov 66	Fla	5	westerstede
																							1	Oct 66	Fla	9	westhampton
																							1	Jul 66	NM		untypable group A
																						1	6	Dec 66			untypable group C
																						1	2	Dec 66			untypable group H
																							3	Oct 66	Cal		untypable group O
25	10	25	22	0	14	6	21	10	1	0	0	18	67	2	1	7	0	17	1	12	0	60	736				Total

TABLE III

Age and Sex Distribution of Individuals Reported as Harboring Salmonellae During December 1966

Age (Years)	Male	Female	Unknown	Total	Percent	Cumulative Percent
< 1	137	98	5	240	23.6	23.6
1 - 4	149	111	2	262	25.8	49.4
5 - 9	63	53	1	117	11.5	60.9
10 - 19	54	43		97	9.6	70.5
20 - 29	32	44	1	77	7.6	78.1
30 - 39	16	28		44	4.3	82.4
40 - 49	31	29		60	5.9	88.3
50 - 59	20	28		48	4.7	93.0
60 - 69	9	17		26	2.6	95.6
70 - 79	11	16		27	2.7	98.3
80 +	3	14		17	1.7	100.0
Subtotal	525	481	9	1015		
Child (Unspec.)	11	5	3	19		
Adult (Unspec.)	2	7		9		
Unknown	191	192	51	434		
Total	729	685	63	1477		
Percent of Total	51.6	48.4				

TABLE IV

REPORTED NONHUMAN ISOLATES BY SEROTYPE AND SOURCE, *DECEMBER, 1966

SEROTYPE	chicken	turkey	duck	pigeon	domestic fowl environment	canary	pheasant	avian	equine	bovine	ovine	porcine	canine	lab animal unspecified	lab mouse	guinea pig	rabbit	monkey	wild rat	raccoon	opossum	rhinoceros	deer	animal environment, unknown	egg	egg yolk	egg albumen	powdered egg	frozen egg	frozen egg albumen	chicken (food)	pork (food)	ham	instant pudding	meal	baby food (peaches)	chocolate candy	dried milk	gravy	coconut	yeast	candy coating	oats	vitamins	poultry feed, unknown	livestock feed	Pet food - meat scraps	pet food - horse meat	feather meal	bone meal/ meat scraps	animal feed, unknown	fish meal	tankage	animal protein	turtle	turtle water	plant protein	milk drying plant	liver powder	thyroid powder	lactalbumin	raw pancreas	cochineal	carmine dye	biological stain	dust	unknown	Total	12 Mos. Total	SEROTYPE
alachua																																																		1	2																	3	30	alachua
anatum	1	5								1		6						5				1			1						1							1													1		1	4						3						1	2	34	442	anatum
bareilly												1																		1																				2																		4	30	bareilly
berta																																																								4												4	7	berta
binza													1																									6								1				2	3		2					1										16	85	binza
blockley	1																																													1																						2	194	blockley
braenderup	3											2																																																								5	38	braenderup
bredeney	2	2																																																1	9								2			1						17	86	bredeney
california																																														2											2											4	33	california
cerro																																																		2	2																	4	66	cerro
chester		4										4																																					1																		1	10	153	chester
cholerae-suis																																																																			1	1	6	cholerae-suis
cholerae-suis v kun												1																																																								1	94	cholerae-suis v kun
corvallis																																														2																						2	4	corvallis
cubana										1																											1	2				3								2	1							2			1		2	51	1			67	219	cubana
denver													1							1																																																2	5	denver
derby	2	2										5																																1		5					2			1						1								19	266	derby
drypool																																														8																						8	15	drypool
dublin										6																																																											6	39	dublin
eimsbuettel	1							4				6																																	1	44			1		1																	58	198	eimsbuettel
enteritidis		1																																																																		1	88	enteritidis
gallinarum	5							1																																																												6	23	gallinarum
give												3																																																								3	55	give
halmstad																																																			3																	3	12	halmstad
heidelberg	6	27										4													2	1			1			1			1																1																1	45	788	heidelberg
illinois																																																		1																		1	7	illinois
infantis	22	1								1		2	1												1		1	2	1									1												1					1													35	369	infantis
java																																														1																						1	51	java
javiana												1																																																								1	8	javiana
johannesburg																																														1																						1	4	johannesburg
kentucky																																														1				1	1			2			1											6	46	kentucky
lexington																																														1																					2	3	15	lexington
livingstone	1																												1											1											7																	10	86	livingstone
manhattan		1																																												1					1																	3	44	manhattan
meleagridis																												1										1								4					1																	7	25	meleagridis
menston																																														1								5														6	7	menston
minneapolis												1																																																								1	3	minneapolis
minnesota	1																																					1												2																		4	51	minnesota
montevideo		1																					1						1																	8				5	1			1													1	19	346	montevideo
muenchen		3																								1																																		1								5	69	muenchen
muenster																																														1																						1	22	muenster
new-brunswick																					1																	1																														2	86	new-brunswick
newington	1	1													1																							1								3	1			2	1																	11	82	newington
newport										1		8	1		1		1																																1																		1	14	159	newport
oranienburg	1											2													3				2												1				1	2		2		1	2																	17	191	oranienburg
orion																																		5				2												1								3										11	25	orion
panama			1																																																																	1	23	panama
pullorum	1																																																																			1	57	pullorum
reading		9																											1																																							10	53	reading
rubislaw													2								4																																					1										7	11	rubislaw
saint-paul	1	10										4	1					3							1																					1																						21	336	saint-paul
san-diego		4																																																																		4	110	san-diego
schwarzengrund	1	18			6																																																															25	276	schwarzengrund
senftenberg		1			4							1	1																																				1	2	1																	11	188	senftenberg
siegburg																																																	2	1																		3	37	siegburg
tennessee	2	1										4														1												1							1	8																						18	206	tennessee
thomasville										1																																				1																						2	29	thomasville
thompson	2												1												2				6														1																									12	203	thompson
tucson																																																																			1	1	1	tucson
typhi-murium	8	6				1			1	20	1	8		2		1			1					2					2				1			1			1								1													2							1	60	885	typhi-murium
typhi-murium v cop	3	1		1			1			3		1																																							1						1											12	203	typhi-murium v cop
uganda																																																					2																2	2	uganda
worthington	3	1																																				6													2																	12	116	worthington
untypable group B										2																																																									1	3	19	untypable group B
untypable group E																																														1						1																2	3	untypable group E
untypable group K																												2	1																						1																	4	11	untypable group K
Totals	68	99	1	1	10	1	1	5	1	36	1	64	9	2	2	1	1	8	1	1	5	1	1	2	10	3	1	5	16	1	1	1	1	5	1	1	1	23	1	1	1	3	1	1	3	98	2	2	6	27	44	1	5	13	1	4	4	7	2	7	1	1	2	51	1	1	12	695	7,727	Total

Source: National Disease Laboratory, Ames, Iowa, weekly Salmonella Reports from individual states and US-FDA-Div of Microbiology, Washington, D.C.

*Includes November late reports.

TABLE V

REPORTED NONHUMAN ISOLATES BY SEROTYPE AND STATE, *DECEMBER, 1966

SEROTYPE	ALA	ARIZ	ARK	CALIF	COLO	CONN	DC	FLA	GA	IDA	ILL	IND	IOWA	KAN	LA	MD	MASS	MICH	MINN	MISS	MO	NEB	NJ	NYA	NC	OHIO	ORE	PA	SC	SD	TEX	UTAH	VA	WASH	WISC	TOTAL	12 MOS. TOTAL	SEROTYPE
alachua												1																			2				3	30	alachua
anatum			1	5			3	1			1			2	10			1	3			4											1	2	34	442	anatum
bareilly								1			1				1																	1			4	30	bareilly
berta																																		4	4	7	berta
binza											5	2		2	1				3					1			1			1					16	85	binza
blockley															1																		1		2	194	blockley
braenderup				3											2																				5	38	braenderup
bredeney				2			2					2						1	9													1			17	86	bredeney
california															2							2													4	33	california
cerro												2														2									4	66	cerro
chester				1							3	1			4				1																10	153	chester
cholerae-suis				1																															1	6	cholerae-suis
cholerae-suis v kun	1																																		1	94	cholerae-suis v kun
corvallis															2																				2	4	corvallis
cubana				2			8				2	3					7		1					38		5							1		67	219	cubana
denver																														2					2	5	denver
derby			1	3											8				2			1		1			2				1				19	266	derby
drypool															8																				8	15	drypool
dublin				3																															6	39	dublin
eimsbuettel								1				1			50					6															58	198	eimsbuettel
enteritidis																			1																1	88	enteritidis
gallinarum			4																1				1												6	23	gallinarum
give															3																				3	55	give
halmstad																			3																3	12	halmstad
heidelberg			1	20	1				5				1		3				2		2				1		1				4			4	45	788	heidelberg
illinois																															1				1	7	illinois
infantis			1	9			2	1	1		8	3			1	1										1	1	3			1		1	1	35	369	infantis
java															1																				1	51	java
javiana															1																				1	8	javiana
johannesburg															1																				1	4	johannesburg
kentucky											1				1							3										1			6	46	kentucky
lexington				2											1																				3	15	lexington
livingstone		1		3																						6									10	86	livingstone
manhattan															1				1													1			3	44	manhattan
meleagridis															4			1	1		1														7	25	meleagridis
menston														5	1																				6	7	menston
minneapolis																											1								1	3	minneapolis
minnesota			1									1						1														1			4	51	minnesota
montevideo									1		2	1			8				1		1	1										3		1	19	346	montevideo
muenchen				3								1						1																	5	69	muenchen
muenster															1																				1	22	muenster
new-brunswick																			1												1				2	86	new-brunswick
newington				2							1	1			3			1	1												1	1			11	82	newington
newport				1							1				8																1	2		1	14	159	newport
oranienburg								4			1	1			3			1	3				1				1				2				17	191	oranienburg
orion											6															5									11	25	orion
panama																								1											1	23	panama
pullorum																																	1		1	57	pullorum
reading				4															2		1						1				1			1	10	53	reading
rubislaw											1				1															5					7	11	rubislaw
saint-paul											2			1	5			1	2							2			1		2		1	4	21	336	saint-paul
san-diego				2																						1		1							4	110	san-diego
schwarzengrund				24	1																														25	276	schwarzengrund
senftenberg				5								1			1				1													3			11	188	senftenberg
siegburg												2																			1			3	37	siegburg
tennessee				2								2			12							1											1	18	206	tennessee
thomasville																						2													2	29	thomasville
thompson												1							5		1										1	3	1		12	203	thompson
tucson				1																															1	1	tucson
typhi-murium				15		1	2			1	4	13	1	2	1	2	2	2	2		2	1	1		3			1			1		1	1	1	60	885	typhi-murium
typhi-murium v cop		1	1						1				1		1			3	2			1				1									12	203	typhi-murium v cop
uganda														2																					2	2	uganda
worthington				5					1		5													1											12	116	worthington
untypable group B				2																						1									3	19	untypable group B
untypable group E															2																				2	3	untypable group E
untypable group K											1					1					1							1							4	11	untypable group K
Total	1	2	10	120	2	1	17	8	9	1	45	39	3	14	153	4	9	13	48	6	9	16	3	42	4	19	8	9	1	2	16	32	2	7	20	695	7,727	Total

Source: National Animal Disease Laboratory, Ames, Iowa, Weekly Salmonella Surveillance Reports from Individual States and USFDA Div. of Microbiology, Washington, D.C.

*Includes November late reports.
NYA - New York-Albany

TABLE VI
OTHER SEROTYPES REPORTED DURING 1966
FROM NONHUMAN SOURCES

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
abortus-bovis	Mar	La(1)	
	Nov	Ill(1)	2
adelaide	Mar	La	1
alagbon	Mar	NJ	2
albany	Aug	Miss(1)	
	Sep	Md(1)	2
amager	May-Jul-Oct	Ark(3)	
	Oct	Ida(1)	4
amsterdam	Jan	Ohio	1
babelsberg	Jan	Ind	1
birmingham	Jun	La	1
bovis-morbificans	Jan	Cal(1)	
	Aug	DC(2)	3
bradford	Jan	NJ	1
cambridge	Apr	La	1
caracas	Mar	La	1
carrau	Apr	Mass	2
champaign	Mar-Oct	La	4
colorado	Mar	NJ	1
eastbourne	Nov	Minn	2
emek	Jul	Tex	1
eppendorf	Jan	NJ	1
fayed	Apr	La(1)	
	Apr	NC(1)	2
gaminara	Jul	La(1)	
	Aug	Tex(1)	2
grumpensis	Mar-Jul-Aug	La(5)	
	Nov	Mich(1)	6
habana	Apr-Nov	Md	2
hamilton	Jan	La	1
hartford	Mar	Fla	1
indiana	Jan	Fla(1)	
	Jan	NJ(6)	
	Feb-Mar-Apr-May-Jun	Ind(14)	
	Feb-Oct	La(2)	
	Mar	Iowa(3)	
	Mar	Mass(1)	
	Mar	Pa(1)	
	Jun	Ill(1)	
	Jul	SC(1)	
	Aug	Mo(3)	
	Oct	Ga(1)	34
inverness	Nov	Ill	1
jedburgh	Nov	La	1
kaapstad	Mar	La	1
kottbus	Feb	Ga	1
lille	Mar	NJ(1)	
	Nov	Md(2)	3
litchfield	Apr	Cal(1)	
	May	Conn(4)	
	May	Ga(1)	
	May	Kan(2)	
	Jun-Jul	Fla(9)	
	Jul	Ohio(1)	
	Jul	Wash(1)	19
luciana	Nov	La	1
madelia	Jul	SC(1)	
	Aug	Cal(1)	2
manila	Jan-Oct	Ind(4)	
	Apr-Nov	Md(2)	
	Aug-Sep-Oct	La(4)	
	Nov	Ill(1)	
	Nov	Mich(1)	12
miami	Feb	Cal(1)	
	Feb	Tex(1)	
	Jul	Fla(1)	
	Jul	Wash(1)	4

TABLE VI (Continued)
OTHER SEROTYPES REPORTED DURING 1966
FROM NONHUMAN SOURCES

SEROTYPE	MONTH(S)	REPORTING CENTER(S)	NUMBER OF ISOLATIONS
mikawishima	Jul	Ind	2
mission	Mar	Ohio(1)	
	May	La(1)	2
mississippi	Mar	La(1)	
	Oct	Va(1)	2
new-haw	Mar	NJ	1
norwich	Jul	Conn(1)	
	Jul	Mich(1)	
	Aug	Okla(2)	
	Nov	La(2)	
	Nov	NJ(1)	7
ohio	Feb	Iowa(7)	
	Feb	Minn(1)	
	Jun	NJ(1)	
	Jun	NYA(1)	10
oslo	Jan-Mar-May-Nov	Cal	6
paratyphi	Mar	Md(1)	
	Mar	Tex(1)	
	Apr-May	Ohio(3)	
	Jul-Oct-Nov	Wash(3)	
	Oct	Ore(1)	9
pharr	Jan	Mich	1
pomona	Mar	NJ(1)	
	Nov	Cal(1)	2
poona	Mar-May-Jun-Oct-Nov	Cal(6)	
	Mar-Oct	Md(3)	
	May	La(1)	
	Jun	Ga(1)	
	Sep	Kan(4)	
	Oct-Nov	Neb(4)	19
portland	Jul	Wash	1
seremban	Aug	Kan	1
simsbury	Jan	Ind(1)	
	Feb-Mar-Jun	Cal(4)	
	Mar	NJ(1)	
	Sep	La(1)	
	Oct	Colo(1)	
	Nov	Ky(1)	9
stockholm	May	Ohio	1
taksony	Feb-Aug	Cal(2)	
	Apr-Nov	Md(2)	
	Jun	Ga(1)	5
teddington	Aug	La	1
tournai	Mar	NJ	1
tuebinger	Jan	Mich	1
typhi	Jan	Mo	1
typhi-suis	Feb-Mar	Cal(6)	
	Mar	Minn(1)	7
urbana	Mar	Md(1)	
	Apr	La(1)	
	Apr-Oct	Ore(2)	
	Jun	Ohio(1)	
	Jul	Mich(2)	
	Jul-Nov	Neb(3)	
	Jul-Sep	Wash(2)	
	Aug-Sep-Oct-Nov	Ill(5)	
	Nov	Minn(1)	18
vejle	Apr	La	1
waycross	Sep	Minn	1
westerstede	Nov	Kan(2)	
	Nov	Pa(3)	5
westhampton	Mar	Kan	1
wichita	Nov	Neb	1
Total			240

Figure I.

REPORTED HUMAN ISOLATIONS OF SALMONELLAE
IN THE UNITED STATES